Abstract

The response of a receiver is calibrated using frequency-shifted stimulus signals. A source provides a stimulus signal that has a non-zero bandwidth and an adjustable spectral position. A signal path coupled between the source and the receiver introduces distortion to the stimulus signal. The receiver acquires a first digital representation of the stimulus signal at an output of the signal path with the stimulus signal adjusted to a first spectral position and acquires a second digital representation of the stimulus signal at the output of the signal path with the stimulus signal adjusted to a second spectral position that is shifted from the first spectral position by a predetermined frequency offset. A processor, designates the distortion introduced to the stimulus signal by the signal path to be equivalent at the first spectral position and the second spectral position. The processor extracts a first combined frequency response of the receiver and the signal path at three or more frequencies within the bandwidth of the stimulus signal, and extracts a second combined frequency response of the receiver and signal path at the three or more frequencies and then determines the frequency response of the receiver from the first combined frequency response and the second combined frequency response. The response of the signal path is optionally determined according to the response calibration scheme under condition that the stimulus signal is known, characterized, designated or otherwise established.